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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/599,647	10/04/2006	Thomas Fischer	P09028US00/RFH	2200

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ALEXANDRIA, VA 22314

EXAMINER
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TADAYYON ESLAMI, TABASSOM

ART UNIT	PAPER NUMBER
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1792

MAIL DATE	DELIVERY MODE
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02/22/2010

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/599,647	<b>Applicant(s)</b> FISCHER, THOMAS	
	<b>Examiner</b> TABASSOM TADAYYON ESLAMI	<b>Art Unit</b> 1792	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 October 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 7-11 and 13-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 7-11, 13-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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Claims 11, and 13 are interpreted under 35 USC 112, 6<sup>th</sup> paragraph to cover the corresponding structure. Based on the disclosure at 18<sup>th</sup> and 20<sup>th</sup> full paragraph the term “means for reducing the surface tension of the substrate in the first or second region to a lower value” interprets as a roller with uneven surface. In claim 11, “means for application of the functional material the substrate” interprets as rolling process, a spraying process, a dipping process or a curtain coating process, based on paragraph 22 of the specification.

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 11, 15, 13, 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sadao Kanbe et al (U. S. Patent: 6733868, here after Kanbe), further in view of Gerald M. Fletcher (U. S. Patent: 3981498, here after Fletcher).

Claims 13 and 15 are rejected. Kanbe teaches a method of making a structure of a functional material on a substrate (100) comprising [abstract lines 1-2];

Activation a surface of the substrate with corona treatment to produce a homogeneous surface tension on the substrate, the homogenous surface tension being higher (as the surface of the substrate is charged now) to normal surface tension of the substrate[column 18 lines 3-11, fig. 12.A]. Neutralizing a first region of the substrate to

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the normal surface tension, as the surface in the first region of the substrate is discharged [fig. 12.B], where the shape of the second region (affinity region) having a shape corresponding to that of the structure to be produced, and applying functional material to the second (charged) region of the substrate such that the functional material is deposited only in the second region whereby the desired structure is formed from the functional material on the first region [fig. 18.A, column 8 lines 4-22]. Although Kanbe does not clearly teach the functional material is an electrical function material, however since the purpose of making the structure is in semiconductor industry, the liquid inherently comprises electrical functional material (insulating or conducting) [column 17 lines 62-67]. Kanbe does not teach neutralizing the first region is done by contacting a first region of the substrate directly with a contact structure. Fletcher teaches a method of forming patterned structure by creating charged pattern area on substrate by a textured roller [abstract lines 1-3]. Fletcher further teaches the roller with constant charge will apply the charge on the substrate where the features are in contact with the surface. Since the surface energy depended on surface charge, therefore if the charged roller is in opposite charge with the substrate, the surface tension reduces (and neutralize) in areas that the roller features touched the substrate. Therefore it would have been obvious to one of ordinary skill in the art at the time of invention was made to produce a structure that Kanve teaches where the neutralizing the localized charges takes place with a roller having features with (opposite) charge, because Fletcher teaches it is appropriate to make a charged pattern on a substrate by a textured roller.

Claim 7 is rejected for the same reason claim 15 is rejected. Kanbe also teaches applying the functional material with a roller [fig. 25.A, column 10 lines 18-27].

Claim 8 is rejected for the same reason claim 7 is rejected. Kanbe also teaches applying the functional material with spraying [column 10 lines 18-27].

Claim 11 is rejected for the same reason claim 15 is rejected. Kanbe and Fletcher teach the apparatus to meet the limitation of claim 11.

3. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sadao Kanbe et al (U. S. Patent: 6733868, here after Kanbe), further in view of Gerald M. Fletcher (U. S. Patent: 3981498, here after Flectcher), further in view of Philip G. Bentley et al (U. S. Patent Application: 2005/0130397, here after Bently).

Kanbe and Fletcher teach the limitation of claim 15 as discussed above. Kanbe and Fletcher teach the patterned surface further comprises high surface energy and neutrize energy areas [see claim 15 rejection above], where the functional materials deposited on the surface with high surface energy [fig. 18.A]. Neither of them teaches the deposition of the functional particles is done by dipping process. Bently teaches a method of forming a pattern on a substrate such as printed circuit boards [0002 1-8]. and further discloses the pattern can be form by a functional liquid (liquid material containing functional material) and by dipping method [0004]. Therefore it would have been obvious to one of ordinary skill in the art at the time of invention was made to produce a structure of functional material with the method that Kanbe and Fletcher teach where the functional material is applied to the surface via dipping as 397 teaches,

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because Bently teaches it is appropriate to apply the functional material to form a patterned surface with dipping it in a functional liquid.

4. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sadao Kanbe et al (U. S. Patent: 6733868, here after Kanbe), further in view of Gerald M. Fletcher (U. S. Patent: 3981498, here after Flectcher), further in view of Mark Lelental et al (U. S. Patent: 7033713, here after Lelental).

Claim 10 is rejected. Kanbe and Fletcher teach the limitation of claim 15 as discussed above. They do not specifically teach the functional material is applied in a curtain coating process. Lelental teaches a method of forming functional material (conductive features) on a substrate [column 4 lines 26-32] and further teaches the functional material applied to the substrate by curtain coating method [column 15 lines 50-58]. Therefore it would have been obvious to one of ordinary skill in the art at the time of invention was made to produce a structure that Kanbe teaches where the functional material is applied by curtain coating as Lelental teaches, because Lelental teaches it is suitable to apply the functional material to a substrate by curtain coating method.

5. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sadao Kanbe et al (U. S. Patent: 6733868, here after Kanbe), further in view of Gerald M. Fletcher (U. S. Patent: 3981498, here after Flectcher), as applied to claim 1 above, further in view of Virgan G. Shah et al , Micro Fab. Tech. Inc, ICP Printed Circuit (2002, pages 1-5), here after Shah.

Kanbe and Fletcher teach the limitation of claim 15. They do not teach the electric functional material is conductive polymer. Shah teaches a method of making semiconductor device by deposition of an ink comprising conductive polymer [title and abstract]. Therefore it would have been obvious to one of ordinary skill in the art at the time of invention was made to produce a structure that Kanbe and Fletcher teach where the electric functional material is comprising conductive polymer, because Shah teaches it is suitable to repair IC's with ink comprising conductive polymer.

### ***Response to Arguments***

6. Applicant's arguments filed 10/20/09 have been fully considered but they are not persuasive. The applicant argues Mackenzie and Hill do not teach the new limitation of claims; however the Kanbe teaches the new limitation of amended claims.

### ***Conclusion***

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to TABASSOM TADAYYON ESLAMI whose telephone number is (571)270-1885. The examiner can normally be reached on 7:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Cleveland can be reached on 571-272-1418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Tabassom T. Tadayyon-Eslami/

Examiner, Art Unit 1792

/Michael Cleveland/

Supervisory Patent Examiner, Art Unit 1792